May 19, 2004

RESULTS OF A MICHIGAN INVESTIGATION FOR BOVINE TB CASE #278744

In February, 2004 a case of suspected bovine tuberculosis was reported by USDA's National Veterinary Services Laboratories (NVSL) based on positive bacteriological culture results from lesions resembling TB collected from a bull during regular slaughter inspection. Standard biochemical testing techniques indicated that the culture isolate was *Mycobacterium bovis*. Histopathology results were reported on October 15, 2003 as pyogranuloma.

Investigations to identify the source for this bull indicated that it had most recently resided in a small herd of beef cattle located in Barry County, Michigan. Tuberculosis testing of all cattle in this herd revealed no indication of bovine tuberculosis infection. Further investigation of other possible exposures showed that the bull was born in an Ontario, Canada herd, and had moved to the United States with 5 other bulls in May, 2002. TB testing of 369 cattle in the bull's birth herd by Canadian animal health officials showed no evidence of infection. In addition, Michigan state and federal officials tested 4 other herds where the bull's traveling companions resided to make sure that exposures had not occurred from them. Again, no evidence of TB infection was disclosed.

As a result of negative herd testing of epidemiologically-linked herds, further investigation of the original bacterial isolate was conducted at the NVSL and other cooperating laboratories to reconfirm that the isolate was truly *Mycobacterium bovis*. The original sample was reprocessed, and it did not result in the isolation of any mycobacterial species. The histopathology tissue block was reanalyzed and genetic testing was performed on the frozen tissue sediment and formalized tissue. Results from these analyses indicated that no acid fast organisms were present and that the samples being tested at NVSL's Pathobiology Lab and Mycobacteriology Lab were from the same animal. Two DNA fingerprinting methods (RFLP and spoligotyping) were used to analyze the original isolate, and results from their analyses suggested that the isolate more closely resembled laboratory reference strains of *Mycobacterium tuberculosis* complex rather than *Mycobacterium bovis*. Based on these results, a corrected report was sent on May 17, 2004 with a diagnosis of "No isolation made" for this sample (NVSL Accession # 278744).

In summary, the results of negative epidemiologic herd testing and further laboratory analyses of the original bacterial isolate indicate that bovine tuberculosis was not likely the cause for the suspicious lesions seen in the bull during slaughter inspection initially.